

AMERICAN MUSEUM NOVITATES

Number 927

Published by
THE AMERICAN MUSEUM OF NATURAL HISTORY
New York City

May 12, 1937

NEW REPTILES FROM THE EOCENE OF SOUTH AMERICA

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Among the specimens collected by the Searratt Patagonian Expeditions of The American Museum of Natural History there are representatives of two new reptiles so remarkable that it is desirable to give preliminary notice of their existence. Detailed monographs on each are being prepared but cannot be completed for some time.

The first of these reptiles may be known as **Sebecus icaeorhinus**, new genus and species, type Amer. Mus. No. 3160, most of the skull and jaws, largely disarticulated but splendidly preserved. *Sebecus* is a thecodont archæosaur and is remotely crocodile-like, but instead of the depressed or quadrate snout of all known crocodiles it has the whole facial region high and strongly compressed laterally, the general habitus like some of the phytosaurs except that the external nares are terminal. The lower jaw also is deep and narrow relative to the crocodiles. The symphysis is moderately long and involves the splenial. Articulation of jaw and skull is double, with a well-developed and separate surangular-quadratejugal articulation in addition to the usual articular-quadrate connection. The teeth, except those in the premaxilla, are strongly compressed laterally and have sharp, serrated edges, the larger teeth being almost exactly like those of some carnivorous dinosaurs but with crocodile-like roots.

A secondary palate is present, but it differs from those of any known crocodiles, including the Mesosuchia. The pterygoids are not involved and the remarkably wide internal nares, at the posterior edge of the short palatines, extend as far forward as the suborbital vacuities. The palatine tube, so typical of even the primitive crocodiles, is thus practically absent.

This animal is so decidedly distinct that detailed comparison with other forms is hardly possible, but it is probably more nearly related to the Crocodilia than to other previously known reptiles. Even this relationship must be remote and any common ancestry could hardly be later than the Triassic and would be doubtfully crocodilian. At the least, *Sebecus* must represent a new suborder of Crocodilia, differing

¹ Publications of the Searratt Expeditions, No. 28.

more from the other suborders than they do among themselves, and it may be necessary to place it in a new order of Archaeosauria. For this new group, whatever rank may ultimately be given it, I propose the name *Sebecosuchia*. Its only known family is at present the *Sebecidae*, new. These groups are sufficiently characterized in a tentative way by the high, narrow face, primitive type of secondary palate, and double jaw articulation. There are numerous other fundamental differences from any other archaeosaurs.

The Ameghino Collection includes at least one tooth of *Sebecus*, identified by both Ameghino and von Huene as a dinosaur but not named. This was the best single item of Ameghino's evidence for dinosaurs in the Casamayor Formation. Von Huene questioned its derivation from that horizon, which is now confirmed as accurate, like almost all Carlos Ameghino's field data, but the identification as a dinosaur, although inevitable on that evidence, was incorrect.

Mingled with the type specimen of *Sebecus* were disarticulated fragments of a turtle skull which prove to represent most of the cranial roof, the posterior frill, quadrate, ear region, and most of the braincase. These reveal a horned turtle evidently allied to the Australian post-Pliocene *Meiolania* and to the South American Cretaceous or Eocene *Niolamia* but quite distinct from either. The large horn cores, on the squamosals, are less prominent than in either of those genera and the frill less expanded, with smaller cores formed in part by the squamosals and in part by the supraoccipital, which is widely exposed dorsally and meets the squamosals. A fenestra is left open on each side between the parietal, which does not reach the posterior edge of the skull, the supraoccipital and the squamosal. The horns and frill are thus less complete or advanced than in *Meiolania* or *Niolamia* although the boss-like dorsal scale areas in general are well differentiated and sharply separated by grooves. The disarticulated and uncrushed nature of the specimen, like that of *Sebecus*, reveals many important anatomical features to be described and illustrated in detail in a later paper. This turtle is evidently a new member of the family *Meiolaniidae* and for it I propose the name ***Crossochelys corniger***, new genus and species, type Amer. Mus. No. 3161.

The presence of a supratemporal opening, clearly shown in this specimen, is unique among chelonians. It is, however, almost certain that this is not the temporal opening seen in the synapsids or the upper opening of the diapsids. It is taken to be a secondary structure arising from an emarginate chelonian skull by the posterior junction of ex-

panded squamosals and supraoccipital. Their farther expansion would obliterate the openings and produce a secondarily entire temporal covering, as had probably occurred in *Niolamia*.

The only previously known South American meiolaniid is *Niolamia argentina*. This resembles the Australian genus *Meiolania*, to which it is often referred, more closely than *Crossochelys* resembles either *Meiolania* or *Niolamia*. The age of *Niolamia* is not surely known and it may be contemporaneous with *Crossochelys* or may be older.

The specimen of *Crossochelys*, while less complete than the best known skulls of *Meiolania* and *Niolamia*, is more revealing as to many important details of the cranial structure and will have an important bearing on the affinities of the Meiolaniidae. These are usually referred to the Pleurodira, but Anderson has adduced evidence from *Meiolania* for placing them in the Amphichelydia. Preliminary study of *Crossochelys* tends to confirm this view and to oppose any close connection with the pleurodires.

The types of *Sebecus icaeorhinus* and *Crossochelys corniger* were found in a greenish stratum of bentonite in Cañadón Hondo, southern Chubut, Argentina. At the same horizon and locality were found many excellent specimens of birds, evidently new, rare mammals, and new lower vertebrates, all yet to be studied. The stratum represents a peculiar facies, not observed at any other locality, within the Casamayor Formation, or *Notostylops* Beds of Ameghino, of Eocene age. A second, much less perfect specimen of *Sebecus* was found at Cañadón Vaca, not far from Cañadón Hondo, associated with a large and characteristic Casamayor mammalian fauna. *Crossochelys* is now surely known only by a single specimen. It is, however, possible that some of the fragments hitherto referred to *Niolamia* (or to *Meiolania argentina*) really belong to *Crossochelys*, since the existence of this distinctive second genus in South America was not suspected and any material representing a horned turtle was referred without question to the known form.

